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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/754,785	01/04/2001	Pierre-Alain Darlet	40101/06901	3238

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EXAMINER	
KISS, ERIC B	
ART UNIT	PAPER NUMBER
2192	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/754,785	DARLET, PIERRE-ALAIN	
	Examiner	Art Unit	
	ERIC B. KISS	2192	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 October 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15 and 40-60* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15 and 40-60* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The reply filed October 17, 2008, has been received and entered. Claims 1-15 and 40-60 are pending.

Response to Arguments

2. Applicant's arguments filed October 17, 2008, have been fully considered but they are not persuasive.

As noted in the previous Office action, *Levine* discloses that under certain circumstances, lorder and tsort won't be able to come up with a total order for the files, resulting in backward references remaining (see "Exercises" on p. 8). *Levine* further suggests a solution to remaining backward references, which includes listing the same library several times on the linker command line (see "Searching libraries" on p. 6-7), essentially replacing a backward reference with a forward reference to the repeated library entry, thereby loading (storing in memory) the components in such a manner as to avoid a nonsequential reading of the reordered software module, *i.e.*, the components are still read sequentially, but in a longer sequence that includes some repeats (for example, A B A, B A B, or A B C D A B C D, as described on p. 6 of *Levine*).

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1-15, 40, 41, and 43-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over John Levine, "Linkers and Loaders, chapter 6," June 1999 [online] accessed 08/15/2005, Retrieved from Internet <URL: http://www.iecc.com/linker/linker06.txt>, 9 pages (hereinafter *Levine*).

As per claim 1, *Levine* discloses receiving a software module, the software module including references to locations within the software module, at least some of the references being backward references; and reordering components of the software module into a predetermined order based on a type (*i.e.* objects being referenced) of the components to remove at least some of the backward references (see "Creating libraries" on pp. 5-6, and in particular, the discussion of using tsort and lorder to arrange object files within an archive library in proper dependency order to allow a single sequential linker pass to resolve all undefined references), wherein the components include at least one of a header, a section, and a table (see p. 2 (Libraries consist of an archive header, followed by alternating file headers and object files)).

Levine further discloses that under certain circumstances, lorder and tsort won't be able to come up with a total order for the files, resulting in some backward references remaining (see "Exercises" on p. 8). *Levine* further suggests a solution to remaining backward references, which includes listing the same library several times on the linker command line (see "Searching libraries" on p. 6-7), essentially replacing a backward reference with a forward reference to the repeated library entry, thereby loading (storing in memory) the components in such a manner as to avoid a nonsequential reading of the reordered software module, *i.e.*, the components are still read sequentially, but in a longer sequence that includes some repeats (for example, A B A, B A B, or A B C D A B C D, as described on p. 6 of *Levine*). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize such storing of backward references in memory to avoid a nonsequential reading as a known means of handling a known limitation of attempting to remove such backward references.

As per claim 2, *Levine* further discloses adjusting at least one of the references in the software module to reflect the reordering of the components of the software module, so that the at least one of the references remains a reference to the same component, by to the component's new, reordered location, the new, reordered location coming after the at least one reference in the software module (see "Creating libraries" on pp. 5-6 and "Library formats" on pp. 1-5).

As per claims 3 and 4, *Levine* further discloses the software module including a symbol table, the symbol table including no backward references after the reordering and adjusting steps (see "Creating libraries" on pp. 5-6, and in particular, the discussion of using tsort and lorder to arrange object files within an archive library in proper dependency order to allow a single sequential linker pass to resolve all undefined references). Further, *Levine* discloses that under certain circumstances, lorder and tsort won't be able to come up with a total order for the files, resulting in backward references remaining (see "Exercises" on p. 8).

As per claims 5-8, *Levine* further discloses the use of relocatable ELF object files, which include sections grouped into segments (see "Library formats" on pp. 1-5). *Levine* further discloses the software module including a symbol table, the symbol table including no backward references after the reordering and adjusting steps (see "Creating libraries" on pp. 5-6, and in particular, the discussion of using tsort and lorder to arrange object files within an archive library in proper dependency order to allow a single sequential linker pass to resolve all undefined references). Further, *Levine* discloses that under certain circumstances, lorder and tsort won't be able to come up with a total order for the files, resulting in backward references remaining (see "Exercises" on p. 8).

As per claim 9, *Levine* discloses a reorder module configured to receive a software module including references to locations within the software module, at least some of the references being backward references, the reorder module configured to reorder components of the software module into a predetermined order based on a type of the components (*i.e.* objects being referenced) and remove at least some of the backward references (see "Creating libraries" on pp. 5-6, and in particular, the discussion of using tsort and lorder to arrange object files within an archive library in proper dependency order to allow a single sequential linker pass to resolve all undefined references), the components including at least one of a header, a section, and a table (see p. 2 (Libraries consist of an archive header, followed by alternating file headers and object files)). The use of a processor and memory is inherent in realizing the functionality of *Levine*.

Levine further discloses that under certain circumstances, lorder and tsort won't be able to come up with a total order for the files, resulting in some backward references remaining (see "Exercises" on p. 8). *Levine* further suggests a solution to remaining backward references, which includes listing the same library several times on the linker command line (see "Searching libraries" on p. 6-7), essentially replacing a backward reference with a forward reference to the repeated library entry, thereby loading (storing in memory) the components in such a manner as to avoid a nonsequential reading of the reordered software module, *i.e.*, the components are still read sequentially, but in a longer sequence that includes some repeats (for example, A B A, B A B, or A B C D A B C D, as described on p. 6 of *Levine*). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize such storing of

backward references in memory to avoid a nonsequential reading as a known means of handling a known limitation of attempting to remove such backward references.

As per claims 10, *Levine* further discloses adjusting at least one of the references in the software module to reflect the reordering of the components of the software module, so that the at least one of the references remains a reference to the same component, by to the component's new, reordered location, the new, reordered location coming after the at least one reference in the software module (see "Creating libraries" on pp. 5-6 and "Library formats" on pp. 1-5).

As per claims 11 and 12, *Levine* further discloses the software module including a symbol table, the symbol table including no backward references after the reordering and adjusting steps (see "Creating libraries" on pp. 5-6, and in particular, the discussion of using tsort and lorder to arrange object files within an archive library in proper dependency order to allow a single sequential linker pass to resolve all undefined references). Further, *Levine* discloses that under certain circumstances, lorder and tsort won't be able to come up with a total order for the files, resulting in backward references remaining (see "Exercises" on p. 8).

As per claims 13-15, *Levine* further discloses the use of relocatable ELF object files, which include sections grouped into segments (see "Library formats" on pp. 1-5). *Levine* further discloses the software module including a symbol table, the symbol table including no backward references after the reordering and adjusting steps (see "Creating libraries" on pp. 5-6, and in particular, the discussion of using tsort and lorder to arrange object files within an archive library in proper dependency order to allow a single sequential linker pass to resolve all undefined references). Further, *Levine* discloses that under certain circumstances, lorder and tsort won't be

able to come up with a total order for the files, resulting in backward references remaining (see "Exercises" on p. 8).

As per claims 40 and 41, *Levine* further discloses linking the reordered module after the reordering (see "Creating libraries" on pp. 5-6, and in particular, the discussion of using tsort and lorder to arrange object files within an archive library in proper dependency order to allow a single sequential linker pass to resolve all undefined references).

As per claims 43-46, *Levine* further discloses the use of relocatable ELF object files, which include sections grouped into segments (see "Library formats" on pp. 1-5).

As per claims 47-54, *Levine* further discloses the reference pointing to/into a section or module before and after reordering (see "Creating libraries" on pp. 5-6 and "Library formats" on pp. 1-5).

As per claim 55, *Levine* discloses receiving a software module, the software module including components arranged in a first order, a first one of the components including a reference to a location in a second one of the components, the second one of the components preceding the first one of the components in the first order; and arranging the components into a predetermined second order so that the second one of the components is subsequent to the first one of the components in the second order, wherein the arrangement is based on a type (*i.e.* objects being referenced) of the first and second ones of the components (see "Creating libraries" on pp. 5-6, and in particular, the discussion of using tsort and lorder to arrange object files within an archive library in proper dependency order to allow a single sequential linker pass to resolve all undefined references), wherein the components include at least one of a header, a section, and

a table (see p. 2 (Libraries consist of an archive header, followed by alternating file headers and object files)).

Levine further discloses that under certain circumstances, lorder and tsort won't be able to come up with a total order for the files, resulting in some backward references remaining (see "Exercises" on p. 8). *Levine* further suggests a solution to remaining backward references, which includes listing the same library several times on the linker command line (see "Searching libraries" on p. 6-7), essentially replacing a backward reference with a forward reference to the repeated library entry, thereby loading (storing in memory) the components in such a manner as to avoid a nonsequential reading of the reordered software module, *i.e.*, the components are still read sequentially, but in a longer sequence that includes some repeats (for example, A B A, B A B, or A B C D A B C D, as described on p. 6 of *Levine*). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize such storing of backward references in memory to avoid a nonsequential reading as a known means of handling a known limitation of attempting to remove such backward references.

As per claims 56 and 57, *Levine* further discloses linking the reordered module after the reordering (see "Creating libraries" on pp. 5-6, and in particular, the discussion of using tsort and lorder to arrange object files within an archive library in proper dependency order to allow a single sequential linker pass to resolve all undefined references).

As per claim 58-60, *Levine* further discloses the use of relocatable ELF object files, which include sections grouped into segments (see "Library formats" on pp. 1-5).

5. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Levine* as applied to claim 1 above, and further in view of U.S. Patent No. 6,185,733 to Breslau et al.

As per claim 42, *Levine* discloses such a method but fails to expressly disclose transferring the reordered module to a different computer system and linking the module on the different computer system. However, *Breslau et al.* teaches the use of remote object libraries distributed prior to linking (see, for example, col. 4, lines 11-20). Therefore, it would have been obvious to one of ordinary skill in the computer art at the time the invention was made to such use of a different computer for linking. One would be motivated to do so, for example, to facilitate distributed software development efforts or reduce the physical storage requirements for object files (see, for example, col. 2, lines 4-25).

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Eric B. Kiss whose telephone number is (571) 272-3699. The Examiner can normally be reached on Tue. - Fri., 7:00 am - 4:30 pm. The Examiner can also be reached on alternate Mondays.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Tuan Dam, can be reached on (571) 272-3695. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Eric B. Kiss/
Eric B. Kiss
Primary Examiner, Art Unit 2192